

Lecture Notes

Prepared by

Mr Manzoor A Lone

PG Env. Science, Islamic St., etc.

EVS teacher,

Govt. Boys Higher Sec. School Panzgam,

Kupwara, JK

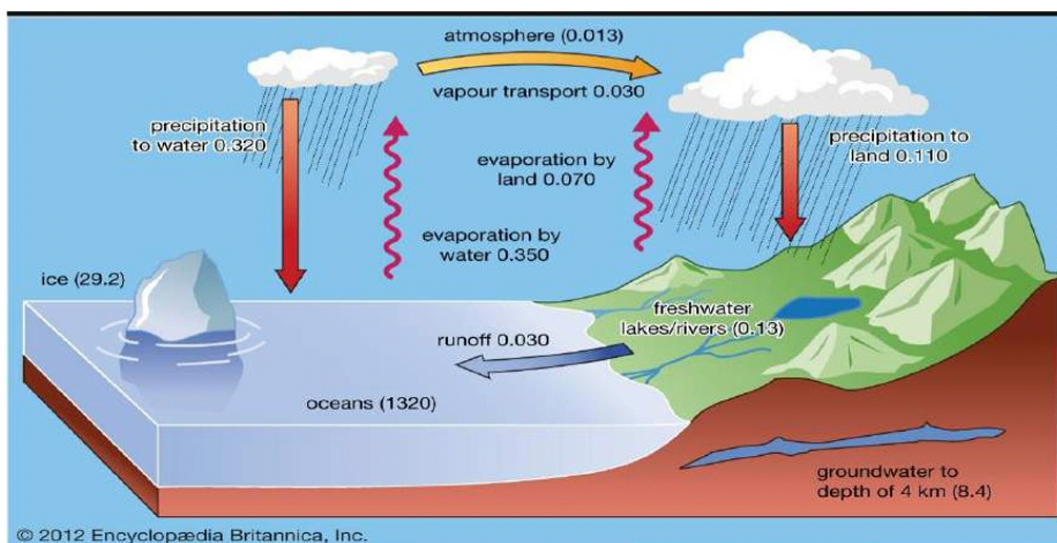
Class: 11th

Topic: Hydrological Cycle

The Hydrological or water cycle

The water cycle describes how water is cycled through hydrosphere on Earth. The water exists on the earth's surface in all three phases, i.e. solid (glaciers and ice sheets), liquid (lakes, rivers, oceans) and vapours (in air and clouds).

The water cycle consists of four major processes i.e. evaporation, transpiration, condensation and precipitation. Let us describe each processes one by one.



1) Evaporation :

It is the process of liquid changing into a gas. In the water cycle, liquid water (in oceans, lakes, rivers) evaporates and becomes water vapour. Water vapour is an important part of the air we breathe and also is a greenhouse gas. Evaporation is driven by the sun and is influenced by wind, temperature and density of the water body. Total annual evaporation from earth amounts to approximately 0.420 millions of cubic kilometers of water. 0.350 millions of cubic kilometers of which evaporates from oceans to the atmosphere annually.

2) Transpiration :

It is the process of water being released from plants in the form of water vapours through stomata. Evapotranspiration is combined component of evaporation and transpiration.

3) Condensation :

It is the process of a gas changing into a liquid. In the water cycle, water vapour in the atmosphere condenses and becomes liquid. The amount of water present in atmosphere in a year is approximately 0.013 millions of cubic kilometers. Clouds form as water vapour condenses. In the atmosphere, annually 0.030 millions of cubic kilometers of water vapour is transported from above the oceans over to land. Condensation is influenced by solar energy. As water vapour cools, it condenses.

4) Precipitation :

It describes any liquid or solid water that falls on earth as a result of condensation in the atmosphere. Precipitation includes rain, snow and hail. Approximately, 0.430 millions of cubic kilometers of water falls as precipitation each year on land and oceans. Precipitation is either absorbed into the ground (percolation) or runs off into the rivers. Water that is absorbed into the ground is taken up by the plants (interception) or reaches the ground water. The amount of ground water to a depth of 4 km is approximately 8.4 millions of cubic kilometers in a year. Plants lose water from their surface as water vapour (transpiration) back into the atmosphere. Water that runs off into rivers flow into ponds, lakes or oceans where it evaporates back into the atmosphere and the water cycle continues. Annually, approximately 0.030 millions of cubic kilometers of water runs off and enters the oceans.

The End